

Navy Removes Bureaucratic Barriers to Accelerate 3D Printing and Accelerate Submarine Lethality



WASHINGTON – In a decisive move to accelerate warfighting capability and eliminate industrial bottlenecks, the Navy released new technical requirements on August 11 designed to rapidly scale the use of metallic 3D-printed materials across the submarine enterprise. The new standards strip away legacy administrative and engineering hurdles, clearing the launchpad for Additive Manufacturing (AM) to be integrated directly into submarine construction, maintenance, and combat-ready repair at unprecedented speeds.

Additive manufacturing represents a paradigm shift in production velocity, on par with the historic transition from

riveting to welding. By removing supply chain friction, this technology enables rapid, on-demand component fabrication and unlocks advanced designs engineered to win the high-end maritime fight.

The newly approved Project Peculiar Document (PPD) 802-8436658 establishes a streamlined, repeatable technical pathway to substitute legacy cast and wrought parts with 3D-printed metallic materials. Historically, swapping a traditional component for an AM equivalent triggered a number of slow, part-by-part engineering assessments, manual drawing modifications, and repetitive first-article testing. The new requirements remove this bottleneck, allowing engineers to bypass redundant approvals and field advanced components at the speed of relevance.

“This is exactly the type of barrier we must remove if we are going to unlock 21st century technology to get our submarine programs on plan and ahead of the threat,” said Vice Adm. Robert Gaucher, Director, Submarine Programs. “Additive manufacturing gives us a tool to get after supply chain constraints and part obsolescence by reducing the time it takes to get critical capability to our warfighters. This directive hands our engineers, shipbuilders, and suppliers authority to execute at scale.”

For submarine construction and sustainment, 3D printing serves as a critical pressure valve—providing more immediate, alternative sourcing for long-lead parts, bypassing defunct suppliers, and neutralizing obsolescence risks before they impact fleet readiness. Additively manufactured metal components are already performing flawlessly in deep-sea operations aboard USS Washington and USS Nevada. The new framework build on these operational victories to deploy AM materials deeper into the platform.

Moving at high speed does not mean cutting corners or sacrificing quality or safety. For high-consequence

applications—including Level I material control and SUBSAFE systems—AM materials remain subject to applicable Navy quality requirements, augmented by rigorous tracking and non-destructive inspection.

“Moving faster does not mean accepting less,” Gaucher emphasized. “As we scale our advanced manufacturing capabilities, we will relentlessly enforce the safety and quality standards our crews rely on. Our objective is clear: embrace advanced manufacturing to solve hard problems, update or removal of legacy processes, and deliver quality submarines safely.”

The Submarine Industrial Base (SIB) Program Office’s Advanced Manufacturing team worked directly with Navy enterprise stakeholders, shipbuilders, and suppliers to forge these requirements. Their mission is to scale advanced manufacturing technologies to drive industrial throughput, fortify the supply chain, and maximize fleet availability.

The requirements are authorized for immediate operational use across submarine design, construction, overhaul, and repair.

To meet the national security mandate of “1+2,” building one Columbia-Class and two Virginia-Class submarines annually, while sustaining the current fleet, the Navy is exploiting AM as a force multiplier. Expanding these technologies is vital to expanding industrial capacity, reducing production bottlenecks, and securing the undersea advantage.

PPD 802-8436658 and its accompanying technical resources are fully indexed and searchable via the Defense Logistics Agency (DLA) Quick Search Portal and the Navy Digital Sea Resource Portal.

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